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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/673,951

09/29/2003

William J. Gunning

3806

44859

7590

07/06/2006

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EXAMINER

CHANG, AUDREY Y

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/673,951	Applicant(s) GUNNING ET AL.	
	Examiner Audrey Y. Chang	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 2-5, 8, 9 and 13-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 7 and 10-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/27/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species D, claims 1, 6 and 7 in the reply filed on April 26, 2006 is acknowledged.
2. Claims 10-12 are rendered generic claims with respect to claim 1 and therefore will be examined.
3. Claims 2-5, 8-9 and 13-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected elected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on April 26, 2006.
4. Claims 1, 6-7 and 10-12 remain pending in this application.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1, 6-7 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent publication by Gasser et al (CH 000680534A5) in view of the patent issued to Payne (PN. 6,958,818).**

Gasser et al teaches a *Fabry-Perot sensor* that is comprised of a *first and second mirrors* serve as the *first and second reflectors* (9 and 12) held in *substantially parallel* alignment and separated by a *hollow space* (6) serves as *the air gap*. Gasser et al teaches that the mirror (9) is attached to the silicon membrane that may be *deflected* and which implicitly made the hollow space a *variable air gap*. Gasser et al further teaches that the reflectors or the mirrors are made of metal wherein on the surface of each of

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the mirrors a *silicon nitride coating* (13 and 14) is formed to prevent corrosion, (please see the abstract). Silicon nitride layer is *dielectric* layer. It is implicitly true that the cavity created by the separation of the two parallel mirrors or reflectors in a Fabry Perot device, *is a resonance cavity* such that the when the optical thickness of the cavity equals a *multiple of half of a wavelength*, incident light having this wavelength will be selected to be transmitted. **Payne** in the same field of endeavor teaches explicitly the operation of the Fabry Perot filter wherein when the cavity length is an integral multiple of a half wavelength of the selected wavelength (such as $\lambda/2$), the Fabry Perot filter transmits light of the selected wavelength and reflects light of all other wavelengths, (please see Figure 2 and column 3, lines 48 to 55). Payne further teaches that the Fabry Perot filter can be *tuned* by varying the length of the cavity so that the wavelength be transmitted can be tuned within a second wider band, (please see Figure 4). For this matters, the actual cavity of the Fabry Perot sensor of Gasser et al should be defined between the *two mirrors* (9 and 12) such that the *effective cavity* includes the *first and second silicon nitride coatings layers* (13 and 14) and the *air hollow space* (6). This suggests the effective refractive index of this effective cavity contributed from both the air space and silicon nitride layers, should be greater than one, since silicon nitride has refractive index greater than one. Payne teaches that the optical thickness or the cavity length should be equal to half of the selected wavelength this suggests the effective cavity including the air space and the silicon nitride coatings should equal to half of the wavelength and this means the optical path length has to be less than quarter wavelength. One skilled in the art can further modify it to have optical thickness of the silicon nitride to be less than quarter of the *shortest* wavelength of the second wider band for the benefit of making the air space the majority part of the effective cavity for the making the effective cavity has the desired structure and effective refractive index to achieve the desired transmittance.

With regard to claims 6 and 7, Gasser et al teaches that the dielectric layers (13 and 14) are of the same silicon nitride material. Although it does not teach explicitly that the thickness of these layers are

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the same, such modification would have been obvious to one skilled in the art for the benefit of making their contribution to the effective cavity be symmetrical on both side of the effective cavity.

Claims 10 and 11 have been addressed in paragraphs above.

With regard to claim 12, Payne teaches that electrical means is used to bias or deflect the reflector to vary the cavity length and therefore tune the filter, (please see column 8, lines 35-36).

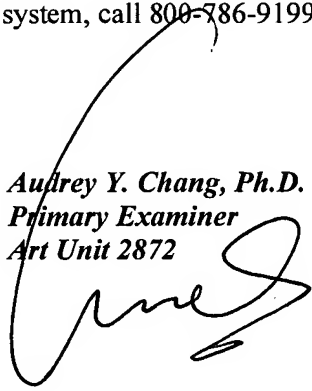
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

***Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872***



A. Chang, Ph.D.